SEQUENCE LISTING

<110> Uebele, Victor N.
Connolly, Thomas M.

<120> NUCLEIC ACID MOLECULES ENCODING NOVEL MURINE LOW-VOLTAGE ACTIVATED CALCIUM CHANNEL PROTEINS DESIGNATED - ALPHA1H, ENCODED PROTEINS AND METHODS OF USE THEREOF

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<150> PCT/US2005/004432
<151> 2005-02-14

<150> US60/545,446
<151> 2004-02-18

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Asp Glu Glu Gln Pro Val Pro Tyr Pro Ala Leu Ala Ala Thr Val Phe
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Phe Cys Leu Gly Gln Thr Thr Arg Pro Arg Ser Trp Cys Leu Arg Leu
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Thr Phe Leu Arg Pro Tyr Tyr Gln Thr Glu Glu Gly Glu Glu Asn Pro
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Phe Ile Cys Ser Ser Arg Arg Asp Asn Gly Met Gln Lys Cys Ser His
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Cys Ile Asn Trp Asn Gln Tyr Tyr Asn Val Cys Arg Ser Gly Glu Phe
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Asn Pro His Asn Gly Ala Ile Asn Phe Asp Asn Ile Gly Tyr Ala Trp
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Tyr Tyr Val Met Asp Ala His Ser Phe Tyr Asn Phe Ile Tyr Phe Ile
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His Gly Gln Gly Pro Gly Arg Arg Pro Arg Arg Ala Gly Arg Arg Thr
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Ala Ser Val His His Leu Val Tyr His His His His His His His His
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His Tyr His Phe Ser His Gly Gly Pro Arg Arg Pro Ser Pro Glu Pro
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Gly Ala Gly Asp Asn Arg Leu Val Arg Ala Cys Ala Pro Pro Ser Pro
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Pro Ser Pro Gly His Gly Pro Pro Asp Ser Glu Ser Val His Ser Ile
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Tyr Glu Lys Ile Gln His Val Val Gly Glu Gln Gly Leu Gly Arg Ala
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Ser Ser His Leu Ser Gly Leu Ser Val Pro Cys Pro Leu Pro Ser Pro
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Gly Asp Cys Arg Asp Pro Val Gln Gln Pro His Glu Val Gly Thr Pro
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Pro Gly Gly Ile Gly His Leu Trp Ala Ser Phe Ser Gly Lys Leu Arg
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Arg Ile Val Asp Ser Lys Tyr Phe Asn Arg Gly Ile Met Ala Ala Ile
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Glu Leu Thr Asn Ala Leu Glu Ile Ser Asn Ile Val Phe Thr Ser Met
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Ala Thr Phe Cys Met Leu Leu Met Leu Phe Ile Phe Ile Phe Ser Ile
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Leu Gly Met His Leu Phe Gly Cys Lys Phe Ser Leu Lys Thr Asp Ser
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Gly Asp Thr Val Pro Asp Arg Lys Asn Phe Asp Ser Leu Leu Trp Ala
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Val Ala Leu Met Thr Phe Gly Asn Tyr Val Leu Phe Asn Leu Leu Val
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Arg Val Leu Lys Leu Leu Lys Met Ala Thr Gly Met Arg Ala Leu Leu
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Asp Thr Val Val Gln Ala Leu Pro Gln Val Gly Asn Leu Gly Leu Leu
1745                1750                1755                1760
Phe Met Leu Leu Phe Phe Ile Tyr Ala Ala Leu Gly Val Glu Leu Phe
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Gly Arg Leu Glu Cys Ser Glu Asp Asn Pro Cys Glu Gly Leu Ser Arg
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His Ala Thr Phe Thr Asn Phe Gly Met Ala Phe Leu Thr Leu Phe Arg
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Val Ser Thr Gly Asp Asn Trp Asn Gly Ile Met Lys Asp Thr Leu Arg
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Glu Cys Thr Arg Glu Asp Lys His Cys Leu Ser Tyr Leu Pro Ala Leu
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Ser Pro Val Tyr Phe Val Thr Phe Val Leu Val Ala Gln Phe Val Leu
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Val Asn Val Val Val Ala Val Leu Met Lys His Leu Glu Glu Ser Asn
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Lys Glu Ala Arg Glu Asp Ala Glu Met Asp Ala Glu Ile Glu Leu Glu
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Met Ala Gln Gly Ser Thr Ala Gln Pro Pro Pro Thr Ala Gln Glu Ser
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Gln Gly Thr Gln Pro Asp Thr Pro Asn Leu Leu Val Val Arg Lys Val
1905                1910                1915                1920
Ser Val Ser Arg Met Leu Ser Leu Pro Asn Asp Ser Tyr Met Phe Arg
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Pro Val Ala Pro Ala Ala Ala Pro His Ser His Pro Leu Gln Glu Val
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Glu Met Glu Thr Tyr Thr Gly Pro Val Thr Ser Ala His Ser Pro Pro
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Leu Glu Pro Arg Ala Ser Phe Gln Val Pro Ser Ala Ala Ser Ser Pro
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Ala Arg Val Ser Asp Pro Leu Cys Ala Leu Ser Pro Arg Gly Thr Pro
1985                1990                1995                2000
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Arg Thr Arg Lys His Thr Phe Gly Gln Arg Cys Ile Ser Ser Arg Pro
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Pro Thr Leu Gly Gly Asp Glu Ala Glu Ala Ala Asp Pro Ala Asp Glu
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Glu Val Ser His Ile Thr Ser Ser Ala His Pro Trp Pro Ala Thr Glu
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Pro His Ser Pro Glu Ala Ser Pro Thr Ala Ser Pro Val Lys Gly Thr
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Met Gly Ser Gly Arg Asp Pro Arg Arg Phe Cys Ser Val Asp Ala Gln
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Ser Phe Leu Asp Lys Pro Gly Arg Pro Asp Ala Gln Arg Trp Ser Ser
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Val Glu Leu Asp Asn Gly Glu Ser His Leu Glu Ser Gly Glu Val Arg
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Gly Arg Ala Ser Glu Leu Glu Pro Ala Leu Gly Ala Arg Arg Lys Lys
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Lys Met Ser Pro Pro Cys Ile Ser Ile Glu Pro Pro Thr Glu Asp Glu
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Gly Ser Ser Arg Pro Pro Ala Ala Glu Gly Gly Asn Thr Thr Leu Arg
    2210                2215                2220
Arg Arg Thr Pro Ser Cys Glu Ala Ala Leu His Arg Asp Cys Pro Glu
2225                2230                2235                2240
Pro Thr Glu Gly Pro Gly Thr Gly Gly Asp Pro Val Ala Lys Gly Glu
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Arg Trp Gly Gln Ala Ser Cys Arg Ala Glu His Leu Thr Val Pro Asn
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Phe Ala Phe Glu Pro Leu Asp Met Gly Gly Pro Gly Gly Asp Cys Phe
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Leu Asp Ser Asp Gln Ser Val Thr Pro Glu Pro Arg Val Ser Ser Leu
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Gly Ala Ile Val Pro Leu Ile Leu Glu Thr Glu Leu Ser Met Pro Ser
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        35                  40                  45
Leu Ala Pro Glu Ser Pro Gly Thr Glu Cys Gly Ala Asp Leu Gly Ala
    50                  55                  60
Asp Glu Glu Gln Pro Val Pro Tyr Pro Ala Leu Ala Ala Thr Val Phe
65                  70                  75                  80
Phe Cys Leu Gly Gln Thr Thr Arg Pro Arg Ser Trp Cys Leu Arg Leu
                85                  90                  95
Val Cys Asn Pro Trp Phe Glu His Ile Ser Met Leu Val Ile Met Leu
            100                 105                 110
Asn Cys Val Thr Leu Gly Met Phe Arg Pro Cys Glu Asp Val Glu Cys
        115                 120                 125
Arg Ser Glu Arg Cys Ser Ile Leu Glu Ala Phe Asp Asp Phe Ile Phe
    130                 135                 140
Ala Phe Phe Ala Val Glu Met Val Ile Lys Met Val Ala Leu Gly Leu
145                 150                 155                 160
Phe Gly Gln Lys Cys Tyr Leu Gly Asp Thr Trp Asn Arg Leu Asp Phe
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Phe Ile Val Met Ala Gly Met Met Glu Tyr Ser Leu Asp Gly His Asn
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Val Ser Leu Ser Ala Ile Arg Thr Val Arg Val Leu Arg Pro Leu Arg
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Ala Ile Asn Arg Val Pro Ser Met Arg Ile Leu Val Thr Leu Leu Leu
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Asp Thr Leu Pro Met Leu Gly Asn Val Leu Leu Leu Cys Phe Phe Val
225                 230                 235                 240
Phe Phe Ile Phe Gly Ile Val Gly Val Gln Leu Trp Ala Gly Leu Leu
                245                 250                 255
Arg Asn Arg Cys Phe Leu Asp Ser Ala Phe Val Arg Asn Asn Asn Leu
            260                 265                 270
Thr Phe Leu Arg Pro Tyr Tyr Gln Thr Glu Glu Gly Glu Glu Asn Pro
        275                 280                 285
Phe Ile Cys Ser Ser Arg Arg Asp Asn Gly Met Gln Lys Cys Ser His
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Ile Pro Ser Arg Arg Glu Leu Arg Val Gln Cys Thr Leu Gly Trp Glu
305                 310                 315                 320
Ala Tyr Gly Gln Pro Gln Ala Glu Asp Gly Gly Ala Gly Arg Asn Ala
                325                 330                 335
Cys Ile Asn Trp Asn Gln Tyr Tyr Asn Val Cys Arg Ser Gly Glu Phe
            340                 345                 350
Asn Pro His Asn Gly Ala Ile Asn Phe Asp Asn Ile Gly Tyr Ala Trp
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Ile Ala Ile Phe Gln Val Ile Thr Leu Glu Gly Trp Val Asp Ile Met
    370                 375                 380
Tyr Tyr Val Met Asp Ala His Ser Phe Tyr Asn Phe Ile Tyr Phe Ile
385                 390                 395                 400
Leu Leu Ile Ile Val Gly Ser Phe Phe Met Ile Asn Leu Cys Leu Val
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Val Ile Ala Thr Gln Phe Ser Glu Thr Lys Gln Arg Glu Asn Gln Leu
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Arg Trp Gln Ser Arg Trp Arg Lys Lys Val Asp Pro Ser Ser Thr Val
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His Gly Gln Gly Pro Gly Arg Arg Pro Arg Arg Ala Gly Arg Arg Thr
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Ala Ser Val His His Leu Val Tyr His His His His His His His His
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His Tyr His Phe Ser His Gly Gly Pro Arg Arg Pro Ser Pro Glu Pro
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Gly Ala Gly Asp Asn Arg Leu Val Arg Ala Cys Ala Pro Pro Ser Pro
545                 550                 555                 560
Pro Ser Pro Gly His Gly Pro Pro Asp Ser Glu Ser Val His Ser Ile
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Tyr His Ala Asp Cys His Val Glu Gly Pro Gln Glu Arg Ala Arg Val
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Ala His Ser Ile Ala Thr Ala Ala Ser Leu Lys Leu Ala Ser Gly Leu
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Gly Thr Met Asn Tyr Pro Thr Ile Leu Pro Ser Gly Thr Val Asn Ser
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Lys Gly Gly Thr Ser Ser Arg Pro Lys Gly Leu Arg Gly Ala Gly Ala
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Pro Gly Ala Ala Val His Ser Pro Leu Ser Leu Gly Ser Pro Arg Pro
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Tyr Glu Lys Ile Gln His Val Val Gly Glu Gln Gly Leu Gly Arg Ala
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Ser Ser His Leu Ser Gly Leu Ser Val Pro Cys Pro Leu Pro Ser Pro
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Gln Ala Gly Thr Leu Thr Cys Glu Leu Lys Ser Cys Pro Tyr Cys Ala
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Ser Ala Leu Glu Asp Pro Glu Phe Glu Phe Ser Gly Ser Glu Ser Gly
705                 710                 715                 720
Asp Ser Asp Ala His Gly Val Tyr Glu Phe Thr Gln Asp Val Arg His
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Gly Asp Cys Arg Asp Pro Val Gln Gln Pro His Glu Val Gly Thr Pro
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Gly His Ser Asn Glu Arg Arg Arg Thr Pro Leu Arg Lys Ala Ser Gln
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Pro Gly Gly Ile Gly His Leu Trp Ala Ser Phe Ser Gly Lys Leu Arg
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Arg Ile Val Asp Ser Lys Tyr Phe Asn Arg Gly Ile Met Ala Ala Ile
785                 790                 795                 800
Leu Val Asn Thr Leu Ser Met Gly Val Glu Tyr His Glu Gln Pro Glu
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Glu Leu Thr Asn Ala Leu Glu Ile Ser Asn Ile Val Phe Thr Ser Met
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Phe Ala Leu Glu Met Leu Leu Lys Leu Leu Ala Cys Gly Pro Leu Gly
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Tyr Ile Arg Asn Pro Tyr Asn Ile Phe Asp Gly Ile Val Val Val Ile
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Ser Val Trp Glu Ile Val Gly Gln Ala Asp Gly Gly Leu Ser Val Leu
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Gly Asp Thr Val Pro Asp Arg Lys Asn Phe Asp Ser Leu Leu Trp Ala
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Ile Val Thr Val Phe Gln Ile Leu Thr Gln Glu Asp Trp Asn Val Val
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Leu Tyr Asn Gly Met Ala Ser Thr Ser Ser Trp Ala Ala Leu Tyr Phe
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Val Ala Leu Met Thr Phe Gly Asn Tyr Val Leu Phe Asn Leu Leu Val
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Val Thr Pro Asn Gly His Leu Glu Gly Arg Gly Ser Leu Pro Pro Pro
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        1155                1160                1165
Lys Gly Ser Thr Asp Asp Glu Ala Glu Asp Ser Arg Pro Ser Thr Gly
    1170                1175                1180
Thr His Pro Gly Ala Ser Pro Gly Pro Arg Ala Thr Pro Leu Arg Arg
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Ala Glu Ser Leu Asp His Arg Ser Thr Leu Asp Leu Cys Pro Pro Arg
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Pro Ala Ala Leu Leu Pro Thr Lys Phe His Asp Cys Asn Gly Gln Met
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Val Ala Leu Pro Ser Glu Phe Phe Leu Arg Ile Asp Ser His Lys Glu
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Asp Ala Ala Glu Phe Asp Asp Asp Ile Glu Asp Ser Cys Cys Phe Arg
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Leu His Lys Val Leu Glu Pro Tyr Ala Pro Gln Trp Cys Arg Ser Arg
1265                1270                1275                1280
Glu Ser Trp Ala Leu Tyr Leu Phe Pro Pro Gln Asn Arg Leu Arg Val
                1285                1290                1295
Ser Cys Gln Lys Val Ile Ala His Lys Met Phe Asp His Val Val Leu
            1300                1305                1310
Val Phe Ile Phe Leu Asn Cys Ile Thr Ile Ala Leu Glu Arg Pro Asp
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Ile Asp Pro Gly Ser Thr Glu Arg Ala Phe Leu Ser Val Ser Asn Tyr
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Ile Phe Thr Ala Ile Phe Val Val Glu Met Met Val Lys Val Val Ala
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Leu Gly Leu Leu Trp Gly Glu His Ala Tyr Leu Gln Ser Ser Trp Asn
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Ala Met Ala Ser Ala Gly Gly Ala Lys Ile Leu Gly Val Leu Arg Val
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Leu Arg Leu Leu Arg Thr Leu Arg Pro Leu Arg Val Ile Ser Arg Ala
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Pro Gly Leu Lys Leu Val Val Glu Thr Leu Ile Ser Ser Leu Arg Pro
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Ile Gly Asn Ile Val Leu Ile Cys Cys Ala Phe Phe Ile Ile Phe Gly
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Ile Leu Gly Val Gln Leu Phe Lys Gly Lys Phe Tyr Tyr Cys Glu Gly
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Thr Asp Thr Arg Asn Ile Thr Thr Lys Ala Glu Cys His Ala Ala His
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Tyr Arg Trp Val Arg Arg Lys Tyr Asn Phe Asp Asn Leu Gly Gln Ala
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Leu Met Ser Leu Phe Val Leu Ser Ser Lys Asp Gly Trp Val Asn Ile
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Met Tyr Asp Gly Leu Asp Ala Val Gly Ile Asp Gln Gln Pro Val Gln
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Asn His Asn Pro Trp Met Leu Leu Tyr Phe Ile Ser Phe Leu Leu Ile
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Val Ser Phe Phe Val Leu Asn Met Phe Val Gly Val Val Val Glu Asn
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Phe His Lys Cys Arg Gln His Gln Glu Ala Glu Glu Ala Arg Arg Arg
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Glu Glu Lys Arg Leu Arg Arg Leu Glu Arg Arg Arg Arg Lys Ala Gln
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Arg Arg Pro Tyr Tyr Ala Asp Tyr Ser His Thr Arg Arg Ser Ile His
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Ser Leu Cys Thr Ser His Tyr Leu Asp Leu Phe Ile Thr Phe Ile Ile
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Cys Leu Asn Val Ile Thr Met Ser Met Glu His Tyr Asn Gln Pro Lys
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Ser Leu Asp Glu Ala Leu Lys Tyr Cys Asn Tyr Val Phe Thr Ile Val
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Phe Phe Lys Asp Arg Trp Asn Gln Leu Asp Leu Ala Ile Val Leu Leu
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Ser Ile Met Gly Ile Ala Leu Glu Glu Ile Glu Met Asn Ala Ala Leu
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Pro Ile Asn Pro Thr Ile Ile Arg Ile Met Arg Val Leu Arg Ile Ala
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Arg Val Leu Lys Leu Leu Lys Met Ala Thr Gly Met Arg Ala Leu Leu
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Gly Arg Leu Glu Cys Ser Glu Asp Asn Pro Cys Glu Gly Leu Ser Arg
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Val Ser Thr Gly Asp Asn Trp Asn Gly Ile Met Lys Asp Thr Leu Arg
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Ser Pro Val Tyr Phe Val Thr Phe Val Leu Val Ala Gln Phe Val Leu
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Lys Glu Ala Arg Glu Asp Ala Glu Met Asp Ala Glu Ile Glu Leu Glu
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Met Ala Gln Gly Ser Thr Ala Gln Pro Pro Pro Thr Ala Gln Glu Ser
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Gln Gly Thr Gln Pro Asp Thr Pro Asn Leu Leu Val Val Arg Lys Val
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Ser Val Ser Arg Met Leu Ser Leu Pro Asn Asp Ser Tyr Met Phe Arg
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Pro Val Ala Pro Ala Ala Ala Pro His Ser His Pro Leu Gln Glu Val
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Glu Met Glu Thr Tyr Thr Gly Pro Val Thr Ser Ala His Ser Pro Pro
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Leu Glu Pro Arg Ala Ser Phe Gln Val Pro Ser Ala Ala Ser Ser Pro
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Ser Glu Ser Leu Glu Gly Lys Val Asp Asp Val Gly Gly Asp Ser Ile
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Arg Thr Arg Lys His Thr Phe Gly Gln Arg Cys Ile Ser Ser Arg Pro
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Pro Thr Leu Gly Gly Asp Glu Ala Glu Ala Ala Asp Pro Ala Asp Glu
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Glu Val Ser His Ile Thr Ser Ser Ala His Pro Trp Pro Ala Thr Glu
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Pro His Ser Pro Glu Ala Ser Pro Thr Ala Ser Pro Val Lys Gly Thr
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Met Gly Ser Gly Arg Asp Pro Arg Arg Phe Cys Ser Val Asp Ala Gln
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Ser Phe Leu Asp Lys Pro Gly Arg Pro Asp Ala Gln Arg Trp Ser Ser
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Val Glu Leu Asp Asn Gly Glu Ser His Leu Glu Ser Gly Glu Val Arg
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Gly Arg Ala Ser Glu Leu Glu Pro Ala Leu Gly Ala Arg Arg Lys Lys
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Lys Met Ser Pro Pro Cys Ile Ser Ile Glu Pro Pro Thr Glu Asp Glu
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Arg Trp Gly Gln Ala Ser Cys Arg Ala Glu His Leu Thr Val Pro Asn
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Phe Ala Phe Glu Pro Leu Asp Met Gly Gly Pro Gly Gly Asp Cys Phe
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Leu Asp Ser Asp Gln Ser Val Thr Pro Glu Pro Arg Val Ser Ser Leu
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Gly Ala Ile Val Pro Leu Ile Leu Glu Thr Glu Leu Ser Met Pro Ser
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Asp Glu Glu Gln Pro Val Pro Tyr Pro Ala Leu Ala Ala Thr Val Phe
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Asn Cys Val Thr Leu Gly Met Phe Arg Pro Cys Glu Asp Val Glu Cys
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Arg Ser Glu Arg Cys Ser Ile Leu Glu Ala Phe Asp Asp Phe Ile Phe
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Val Ser Leu Ser Ala Ile Arg Thr Val Arg Val Leu Arg Pro Leu Arg
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Asp Thr Leu Pro Met Leu Gly Asn Val Leu Leu Leu Cys Phe Phe Val
225                 230                 235                 240
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Ala Tyr Gly Gln Pro Gln Ala Glu Asp Gly Gly Ala Gly Arg Asn Ala
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Cys Ile Asn Trp Asn Gln Tyr Tyr Asn Val Cys Arg Ser Gly Glu Phe
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Asn Pro His Asn Gly Ala Ile Asn Phe Asp Asn Ile Gly Tyr Ala Trp
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Ile Ala Ile Phe Gln Val Ile Thr Leu Glu Gly Trp Val Asp Ile Met
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Pro Gly Ala Ala Val His Ser Pro Leu Ser Leu Gly Ser Pro Arg Pro
                645                 650                 655
Tyr Glu Lys Ile Gln His Val Val Gly Glu Gln Gly Leu Gly Arg Ala
            660                 665                 670
Ser Ser His Leu Ser Gly Leu Ser Val Pro Cys Pro Leu Pro Ser Pro
        675                 680                 685
Gln Ala Gly Thr Leu Thr Cys Glu Leu Lys Ser Cys Pro Tyr Cys Ala
    690                 695                 700
Ser Ala Leu Glu Asp Pro Glu Phe Glu Phe Ser Gly Ser Glu Ser Gly
705                 710                 715                 720
Asp Ser Asp Ala His Gly Val Tyr Glu Phe Thr Gln Asp Val Arg His
                725                 730                 735
Gly Asp Cys Arg Asp Pro Val Gln Gln Pro His Glu Val Gly Thr Pro
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            740                 745                 750
Gly His Ser Asn Glu Arg Arg Arg Thr Pro Leu Arg Lys Ala Ser Gln
        755                 760                 765
Pro Gly Gly Ile Gly His Leu Trp Ala Ser Phe Ser Gly Lys Leu Arg
    770                 775                 780
Arg Ile Val Asp Ser Lys Tyr Phe Asn Arg Gly Ile Met Ala Ala Ile
785                 790                 795                 800
Leu Val Asn Thr Leu Ser Met Gly Val Glu Tyr His Glu Gln Pro Glu
                805                 810                 815
Glu Leu Thr Asn Ala Leu Glu Ile Ser Asn Ile Val Phe Thr Ser Met
            820                 825                 830
Phe Ala Leu Glu Met Leu Leu Lys Leu Leu Ala Cys Gly Pro Leu Gly
        835                 840                 845
Tyr Ile Arg Asn Pro Tyr Asn Ile Phe Asp Gly Ile Val Val Val Ile
    850                 855                 860
Ser Val Trp Glu Ile Val Gly Gln Ala Asp Gly Gly Leu Ser Val Leu
865                 870                 875                 880
Arg Thr Phe Arg Leu Leu Arg Val Leu Lys Leu Val Arg Phe Leu Pro
                885                 890                 895
Ala Leu Arg Arg Gln Leu Val Val Leu Met Arg Thr Met Asp Asn Val
            900                 905                 910
Ala Thr Phe Cys Met Leu Leu Met Leu Phe Ile Phe Ile Phe Ser Ile
        915                 920                 925
Leu Gly Met His Leu Phe Gly Cys Lys Phe Ser Leu Lys Thr Asp Ser
    930                 935                 940
Gly Asp Thr Val Pro Asp Arg Lys Asn Phe Asp Ser Leu Leu Trp Ala
945                 950                 955                 960
Ile Val Thr Val Phe Gln Ile Leu Thr Gln Glu Asp Trp Asn Val Val
                965                 970                 975
Leu Tyr Asn Gly Met Ala Ser Thr Ser Ser Trp Ala Ala Leu Tyr Phe
            980                 985                 990
Val Ala Leu Met Thr Phe Gly Asn Tyr Val Leu Phe Asn Leu Leu Val
        995                 1000                1005
Ala Ile Leu Val Glu Gly Phe Gln Ala Glu Gly Asp Ala Thr Arg Ser
    1010                1015                1020
Asp Thr Asp Glu Asp Lys Thr Ser Thr Gln Leu Glu Gly Asp Phe Asp
1025                1030                1035                1040
Lys Leu Arg Asp Leu Arg Ala Thr Glu Met Lys Met Tyr Ser Leu Ala
                1045                1050                1055
Val Thr Pro Asn Gly His Leu Glu Gly Arg Gly Ser Leu Pro Pro Pro
            1060                1065                1070
Leu Ile Thr His Thr Ala Ala Thr Pro Met Pro Thr Pro Lys Ser Ser
        1075                1080                1085
Pro Asn Leu Asp Val Ala His Ala Leu Leu Asp Ser Arg Arg Ser Ser
    1090                1095                1100
Ser Gly Ser Val Asp Pro Gln Leu Gly Asp Gln Lys Ser Leu Ala Ser
1105                1110                1115                1120
Leu Arg Ser Ser Pro Cys Thr Pro Trp Gly Pro Asn Ser Ala Gly Ser
                1125                1130                1135
Ser Arg Arg Ser Ser Trp Asn Ser Leu Gly Arg Ala Pro Ser Leu Lys
            1140                1145                1150
Arg Arg Ser Gln Cys Gly Glu Arg Glu Ser Leu Leu Ser Gly Glu Gly
        1155                1160                1165
Lys Gly Ser Thr Asp Asp Glu Ala Glu Asp Ser Arg Pro Ser Thr Gly
    1170                1175                1180
Thr His Pro Gly Ala Ser Pro Gly Pro Arg Ala Thr Pro Leu Arg Arg
1185                1190                1195                1200
Ala Glu Ser Leu Asp His Arg Ser Thr Leu Asp Leu Cys Pro Pro Arg
                1205                1210                1215
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Pro Ala Ala Leu Leu Pro Thr Lys Phe His Asp Cys Asn Gly Gln Met
            1220                1225                1230
Val Ala Leu Pro Ser Glu Phe Phe Leu Arg Ile Asp Ser His Lys Glu
        1235                1240                1245
Asp Ala Ala Glu Phe Asp Asp Asp Ile Glu Asp Ser Cys Cys Phe Arg
    1250                1255                1260
Leu His Lys Val Leu Glu Pro Tyr Ala Pro Gln Trp Cys Arg Ser Arg
1265                1270                1275                1280
Glu Ser Trp Ala Leu Tyr Leu Phe Pro Pro Gln Asn Arg Leu Arg Val
                1285                1290                1295
Ser Cys Gln Lys Val Ile Ala His Lys Met Phe Asp His Val Val Leu
            1300                1305                1310
Val Phe Ile Phe Leu Asn Cys Ile Thr Ile Ala Leu Glu Arg Pro Asp
        1315                1320                1325
Ile Asp Pro Gly Ser Thr Glu Arg Ala Phe Leu Ser Val Ser Asn Tyr
    1330                1335                1340
Ile Phe Thr Ala Ile Phe Val Val Glu Met Met Val Lys Val Val Ala
1345                1350                1355                1360
Leu Gly Leu Leu Trp Gly Glu His Ala Tyr Leu Gln Ser Ser Trp Asn
                1365                1370                1375
Val Leu Asp Gly Leu Leu Val Leu Val Ser Leu Val Asp Ile Ile Val
            1380                1385                1390
Ala Met Ala Ser Ala Gly Gly Ala Lys Ile Leu Gly Val Leu Arg Val
        1395                1400                1405
Leu Arg Leu Leu Arg Thr Leu Arg Pro Leu Arg Val Ile Ser Arg Ala
    1410                1415                1420
Pro Gly Leu Lys Leu Val Val Glu Thr Leu Ile Ser Ser Leu Arg Pro
1425                1430                1435                1440
Ile Gly Asn Ile Val Leu Ile Cys Cys Ala Phe Phe Ile Ile Phe Gly
                1445                1450                1455
Ile Leu Gly Val Gln Leu Phe Lys Gly Lys Phe Tyr Tyr Cys Glu Gly
            1460                1465                1470
Thr Asp Thr Arg Asn Ile Thr Thr Lys Ala Glu Cys His Ala Ala His
        1475                1480                1485
Tyr Arg Trp Val Arg Arg Lys Tyr Asn Phe Asp Asn Leu Gly Gln Ala
    1490                1495                1500
Leu Met Ser Leu Phe Val Leu Ser Ser Lys Asp Gly Trp Val Asn Ile
1505                1510                1515                1520
Met Tyr Asp Gly Leu Asp Ala Val Gly Ile Asp Gln Gln Pro Val Gln
                1525                1530                1535
Asn His Asn Pro Trp Met Leu Leu Tyr Phe Ile Ser Phe Leu Leu Ile
            1540                1545                1550
Val Ser Phe Phe Val Leu Asn Met Phe Val Gly Val Val Val Glu Asn
        1555                1560                1565
Phe His Lys Cys Arg Gln His Gln Glu Ala Glu Glu Ala Arg Arg Arg
    1570                1575                1580
Glu Glu Lys Arg Leu Arg Arg Leu Glu Arg Arg Arg Arg Lys Ala Gln
1585                1590                1595                1600
Arg Arg Pro Tyr Tyr Ala Asp Tyr Ser His Thr Arg Arg Ser Ile His
                1605                1610                1615
Ser Leu Cys Thr Ser His Tyr Leu Asp Leu Phe Ile Thr Phe Ile Ile
            1620                1625                1630
Cys Leu Asn Val Ile Thr Met Ser Met Glu His Tyr Asn Gln Pro Lys
        1635                1640                1645
Ser Leu Asp Glu Ala Leu Lys Tyr Cys Asn Tyr Val Phe Thr Ile Val
    1650                1655                1660
Phe Val Phe Glu Ala Ala Leu Lys Leu Val Ala Phe Gly Phe Arg Arg
1665                1670                1675                1680
Phe Phe Lys Asp Arg Trp Asn Gln Leu Asp Leu Ala Ile Val Leu Leu
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                1685                1690                1695
Ser Ile Met Gly Ile Ala Leu Glu Glu Ile Glu Met Asn Ala Ala Leu
            1700                1705                1710
Pro Ile Asn Pro Thr Ile Ile Arg Ile Met Arg Val Leu Arg Ile Ala
        1715                1720                1725
Arg Val Leu Lys Leu Leu Lys Met Ala Thr Gly Met Arg Ala Leu Leu
    1730                1735                1740
Asp Thr Val Val Gln Ala Leu Pro Gln Val Gly Asn Leu Gly Leu Leu
1745                1750                1755                1760
Phe Met Leu Leu Phe Phe Ile Tyr Ala Ala Leu Gly Val Glu Leu Phe
                1765                1770                1775
Gly Arg Leu Glu Cys Ser Glu Asp Asn Pro Cys Glu Gly Leu Ser Arg
            1780                1785                1790
His Ala Thr Phe Thr Asn Phe Gly Met Ala Phe Leu Thr Leu Phe Arg
        1795                1800                1805
Val Ser Thr Gly Asp Asn Trp Asn Gly Ile Met Lys Asp Thr Leu Arg
    1810                1815                1820
Glu Cys Thr Arg Glu Asp Lys His Cys Leu Ser Tyr Leu Pro Ala Leu
1825                1830                1835                1840
Ser Pro Val Tyr Phe Val Thr Phe Val Leu Val Ala Gln Phe Val Leu
                1845                1850                1855
Val Asn Val Val Val Ala Val Leu Met Lys His Leu Glu Glu Ser Asn
            1860                1865                1870
Lys Glu Ala Arg Glu Asp Ala Glu Met Asp Ala Glu Ile Glu Leu Glu
        1875                1880                1885
Met Ala Gln Gly Ser Thr Ala Gln Pro Pro Pro Thr Ala Gln Glu Ser
    1890                1895                1900
Gln Gly Thr Gln Pro Asp Thr Pro Asn Leu Leu Val Val Arg Lys Val
1905                1910                1915                1920
Ser Val Ser Arg Met Leu Ser Leu Pro Asn Asp Ser Tyr Met Phe Arg
                1925                1930                1935
Pro Val Ala Pro Ala Ala Ala Pro His Ser His Pro Leu Gln Glu Val
            1940                1945                1950
Glu Met Glu Thr Tyr Thr Gly Pro Val Thr Ser Ala His Ser Pro Pro
        1955                1960                1965
Leu Glu Pro Arg Ala Ser Phe Gln Val Pro Ser Ala Ala Ser Ser Pro
    1970                1975                1980
Ala Arg Val Ser Asp Pro Leu Cys Ala Leu Ser Pro Arg Gly Thr Pro
1985                1990                1995                2000
Arg Ser Leu Ser Leu Ser Arg Ile Leu Cys Arg Gln Glu Ala Met His
                2005                2010                2015
Ser Glu Ser Leu Glu Gly Lys Val Asp Asp Val Gly Gly Asp Ser Ile
            2020                2025                2030
Pro Asp Tyr Thr Glu Pro Ala Glu Asn Met Ser Thr Ser Gln Ala Ser
        2035                2040                2045
Thr Gly Ala Pro Arg Ser Pro Pro Cys Ser Pro Arg Pro Ala Ser Val
    2050                2055                2060
Arg Thr Arg Lys His Thr Phe Gly Gln Arg Cys Ile Ser Ser Arg Pro
2065                2070                2075                2080
Pro Thr Leu Gly Gly Asp Glu Ala Glu Ala Ala Asp Pro Ala Asp Glu
                2085                2090                2095
Glu Val Ser His Ile Thr Ser Ser Ala His Pro Trp Pro Ala Thr Glu
            2100                2105                2110
Pro His Ser Pro Glu Ala Ser Pro Thr Ala Ser Pro Val Lys Gly Thr
        2115                2120                2125
Met Gly Ser Gly Arg Asp Pro Arg Arg Phe Cys Ser Val Asp Ala Gln
    2130                2135                2140
Ser Phe Leu Asp Lys Pro Gly Arg Pro Asp Ala Gln Arg Trp Ser Ser
2145                2150                2155                2160
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Val Glu Leu Asp Asn Gly Glu Ser His Leu Glu Ser Gly Glu Val Arg
                2165                2170                2175
Gly Arg Ala Ser Glu Leu Glu Pro Ala Leu Gly Ser Arg Arg Lys Lys
            2180                2185                2190
Lys Met Ser Pro Pro Cys Ile Ser Ile Glu Pro Pro Thr Glu Asp Glu
        2195                2200                2205
Gly Ser Ser Arg Pro Pro Ala Ala Glu Gly Gly Asn Thr Thr Leu Arg
    2210                2215                2220
Arg Arg Thr Pro Ser Cys Glu Ala Ala Leu His Arg Asp Cys Pro Glu
2225                2230                2235                2240
Pro Thr Glu Gly Pro Gly Thr Gly Gly Asp Pro Val Ala Lys Gly Glu
                2245                2250                2255
Arg Trp Gly Gln Ala Ser Cys Arg Ala Glu His Leu Thr Val Pro Asn
            2260                2265                2270
Phe Ala Phe Glu Pro Leu Asp Met Gly Gly Pro Gly Gly Asp Cys Phe
        2275                2280                2285
Leu Asp Ser Asp Gln Ser Val Thr Pro Glu Pro Arg Val Ser Ser Leu
    2290                2295                2300
Gly Ala Ile Val Pro Leu Ile Leu Glu Thr Glu Leu Ser Met Pro Ser
2305                2310                2315                2320
Gly Asp Cys Pro Glu Lys Glu Gln Gly Leu Tyr Leu Thr Val Pro Gln
                2325                2330                2335
Thr Pro Leu Lys Lys Pro Gly Ser Thr Pro Ala Thr Pro Ala Pro Asp
            2340                2345                2350
Asp Ser Gly Asp Glu Pro Val
        2355
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